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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/525,185	02/22/2005	Masahiro Wakamori	MAT-8661US	3479

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RATNERPRESTIA
P O BOX 980
VALLEY FORGE, PA 19482-0980

EXAMINER
RADKIEWICZ, JARED

ART UNIT	PAPER NUMBER
2624	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/525,185	WAKAMORI, MASAHIRO	
	Examiner	Art Unit	
	Jared W. Radkiewicz	2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-8 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-8 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on 25 February 2005 is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date 2/22/2005.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. **Claim 1** is rejected under 35 U.S.C. 102(b) as being anticipated by Zhang (US 5,978,494).

Regarding **claim 1**, Zhang teaches an eye image taking device comprising:

an imaging unit for taking an eye image of a user (Figure 2 element 38, "camera");

a focusing degree calculating unit for calculating a focusing degree from the eye image taken at the imaging unit (Figure 1 element 18, "Compute the focus value F");

a threshold setting unit for setting a focusing threshold intrinsic to an authorized user; wherein the threshold setting unit sets the focusing threshold on the basis of the eye image of the authorized user (The focusing threshold F of figure 1 is a quality of the chosen 'master image' and selected through steps 20-33); and

a focus deciding unit for deciding a focus by comparing the focusing degree and the focusing threshold (Figure 1 element 18 demonstrates focus thresholding and uses the upper and lower bounds for the focusing threshold selected by the setting unit).

Regarding **claim 3**, Zhang teaches the eye image taking device according to claim 1 wherein the threshold setting unit sets the focusing threshold on the basis of the focusing degree which is calculated from the eye images taken at the focal distance for the authorized user (The 'master enroll image' of figure 1 is the image with the sharpest focus, taken at the focal distance of the imager).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. **Claim 2** is rejected under 35 U.S.C. 103(a) as being unpatentable over Zhang (US 5,978,494) in view of McHugh et al. (US 6,289,113).

Regarding **claim 2**, Zhang teaches the eye image taking device according to claim 1:

wherein the threshold setting unit selects the maximum from a plurality of focusing degrees, which are calculated individually from the plural eye images of different imaging distances for the authorized user, thereby to set the focusing threshold on the basis of the maximum (Zhang figure 1 illustrates computing focus values for multiple images, and selecting the best candidates from this set).

Zhang does not teach the eye image taking device according to claim 1:

wherein the focusing degree calculating unit calculates the magnitude of the high-frequency components contained in the eye image taken by the imaging unit, as the focusing degree.

McHugh teaches the eye image taking device according to claim 1:

wherein the focusing degree calculating unit calculates the magnitude of the high-frequency components contained in the eye image taken by the imaging unit, as the focusing degree ("an effective way to estimate the quality of focus of an image is to measure its total amount of energy in the 2D Fourier domain at high spatial frequencies, since these are the most attenuated by defocus", Column 10 Line 51);

It would have been obvious at the time of invention to one of ordinary skill in the art to use the high frequency calculating method of focus calculation as taught by McHugh because it is "an effective way to estimate the quality of focus of an image" (Column 10 Line 51).

5. **Claims 4 and 5** are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al. (US 2002/0131622 A1) in view of Hay et al. (US 6,095,989).

Regarding **claim 4**, Lee teaches an eye image taking device comprising:

an imaging unit for taking an eye image of a user (Lee Figure 5 element 402 "Iris recognition camera");

a dimension calculating unit for calculating a dimension in the eye image (Lee measures "size, sharpness and location of the two infrared spot images", Lee Paragraph 112);

a reference dimension setting unit for setting a reference dimension intrinsic to an authorized user ("In this way, the distance measurer can calculate the distance (D) between the user and the iris recognition camera by analyzing the characteristics described above", wherein the distance measure requires predetermined knowledge about the camera setup and facial geometry; Lee Paragraph 113); and

a focus deciding unit for deciding a focus by comparing the dimension and the reference dimension, wherein the reference dimension setting unit sets the reference dimension on the basis of the eye image of the authorized user (The distance information is used to determine "whether or not the user has entered into the iris recognizable domain, the domain where the camera is focused", Lee Paragraph 113).

Lee does not teach the device wherein the measured dimension is an iris diameter.

Hay teaches measuring an iris diameter in an eye image (Figure 15 lists 494 and 496, item 5 "iris diameter").

It would have been obvious at the time of invention to one of ordinary skill in the art to use an iris diameter as taught by Hay as the measured dimension in the focus calculating unit of Lee because the process of correlating a distance to a measured in image parameter as taught by Lee is applicable to any measurement in an image. Hay teaches that it is possible to measure the diameter of an iris in an image of eyes, and all

eye images used by Lee have iris diameters, making the choice of an iris diameter an attractive parameter to measure.

Regarding **claim 5**, the Lee and Hay combination as applied to claim 4 teaches the eye image taking device according to claim 4, wherein the reference diameter setting unit sets the value of the iris diameter, which is calculated from the eye images taken at the focal distance for the authorized user, as the reference iris diameter ("the present embodiment enables to measure the distance between the user and the camera by projecting an infrared spot image and analyzing where the spot image is going to be positioned on the user's face", Lee Paragraph 83).

6. **Claims 6-8** are rejected under 35 U.S.C. 103(a) as being unpatentable over by Zhang (US 5,978,494) in view of Lee et al. (US 2002/0131622 A1) and Hay et al. (US 6,095,989).

Regarding **claim 6**, Zhang teaches an eye image taking device comprising:

an imaging unit for taking an eye image of a user (Zhang Figure 2 element 38, "camera");

a focusing degree calculating unit for calculating a focusing degree from the eye image taken at the imaging unit (Zhang Figure 1 element 18, "Compute the focus value F");

a threshold setting unit for setting a focusing threshold intrinsic to an authorized user (The focusing threshold F of Zhang figure 1 is a quality of the chosen 'master image' and selected through steps 20-33);

a first focus deciding unit for deciding a focus by comparing the focusing degree and the focusing threshold (Zhang Figure 1 element 18 demonstrates focus thresholding and uses the upper and lower bounds for the focusing threshold selected by the setting unit);

Zhang does not teach a second focus determining unit.

Lee teaches the necessity of having a second focusing unit to use in case the first unit doesn't work ("sometimes the user himself has to focus the camera by looking at the screen and moving back and forth", Lee Paragraph 14). Lee also teaches a focus determining unit comprising:

a dimension calculating unit for calculating a dimension in the eye image (Lee measures "size, sharpness and location of the two infrared spot images", Lee Paragraph 112);

a reference dimension setting unit for setting a reference dimension intrinsic to an authorized user ("In this way, the distance measurer can calculate the distance (D) between the user and the iris recognition camera by analyzing the characteristics described above", wherein the distance measure requires predetermined knowledge about the camera setup and facial geometry; Lee Paragraph 113); and

a second focus deciding unit for deciding a focus by comparing the dimension and the reference dimension (The distance information is used to determine "whether or

not the user has entered into the iris recognizable domain, the domain where the camera is focused", Lee Paragraph 113);

It would have been obvious at the time of invention to one of ordinary skill in the art to provide the focus determining unit of Zhang with a backup focus determining unit as demonstrated by Lee because Lee teaches that alternative focus determining methods may be necessary, with the example of manual focus given.

Zhang and Lee do not teach the focus determining device wherein the measured dimension is an iris diameter.

Hay teaches measuring an iris diameter in an eye image (Figure 15 lists 494 and 496, item 5 "iris diameter").

It would have been obvious at the time of invention to one of ordinary skill in the art to use an iris diameter as taught by Hay as the measured dimension in the focus calculating unit of Zhang and Lee because the process of correlating a distance to a measured in image parameter as taught by Zhang and Lee is applicable to any measurement in an image. Hay teaches that it is possible to measure the diameter of an iris in an image of eyes, and all eye images used by Lee have iris diameters, making the choice of an iris diameter an attractive parameter to measure.

Regarding **claim 7**, the Zhang, Lee, and Hay combination as applied to claim 6 teaches the device wherein the reference diameter setting unit sets the iris diameter in the eye image of the maximum focusing degree of the plural eye images of different imaging distances, as the reference iris diameter for the authorized user ("the present

embodiment enables to measure the distance between the user and the camera by projecting an infrared spot image and analyzing where the spot image is going to be positioned on the user's face", Lee Paragraph 83).

Regarding **claim 8**, the Zhang, Lee, and Hay combination as applied to claim 6 does not teach the eye image taking device according to claim 6,

wherein the reference diameter setting unit sets the values of such two of the plural iris diameters calculated individually from the plural eye images of different imaging distances as have an equal focusing degree and an iris diameter ratio equal to a predetermined value, as two reference iris diameters for the authorized user, and

wherein the threshold setting unit sets the focusing degree as the focusing threshold.

Zhang teaches the concept of an acceptable range of focus values for the iris image (Zhang Figure 1 step 18).

It would have been obvious at the time of invention to one of ordinary skill in the art to use iris diameter values as the acceptable focus range because in light of the Zhang, Lee, and Hay combination at applied to claim 6 we know that iris diameters are directly relatable to focus degree.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jared W. Radkiewicz whose telephone number is (571) 270-1577. The examiner can normally be reached on 8:00 - 5:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian P. Werner can be reached on (571) 272-7401. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JWR

BRIAN WERNER
SUPERVISORY PATENT EXAMINER